ABSTRACTS: VOLUME 1, SPECIAL ISSUE S1. _____

ABSTRACT

The Effect of L- Ascorbic Acid (Vitamin C) Dl-Alpha – Tocopherol Acetate (Vitamin E) and White Grape Seed Oil on Colorful Melanin Concentrations Using Synthetic Melanin

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Published in September 2019

Vitamin C is used as an antioxidant to treat UV-induced skin pigmentation disease. When combining it with Vitamin E, its antioxidant effect increases by 4 folds. Grape-seed-oil contains phenols like catechin which express a powerful antioxidant effect and a whitening effect. Combining the three agents together gives a synergistic effect that magnifies the decreasing colorful melanin concentrations. Objectives: To determine the effect of Vitamin C, Vitamin E and grape-seed-oil on melanin concentrations separately then determine the synergistic effect for three ingredients together. Synthetic melanin calibration's curve was constructed using spectrophotometer; then Vitamin C, Vitamin E and grape-seed-oil were added to the melanoma cells. Cell viability was measured after 72 hours using hemocytometer, then different concentrations of the agents and its combinations were added to the synthetic melanin solutions in order to measure melanin concentrations using spectrophotometer. The combination of the three ingredients (Vitamin C, Vitamin E, and grape-seed-oil) achieved an extremely statistically significant decreasing in melanin concentration. The combinations that contain grape-seed-oil showed higher effect on melanin concentration reduction than the combinations without grape-seed-oil; Vitamin C and Vitamin E separately did not show any significant reduction on melanin concentrations and grape-seed-oil showed a statistically significant effect on decreasing melanin concentrations. The combinations of the three ingredients together (Vitamin C, Vitamin E, and grape-seed-oil) achieved the lowest p-value (Extremely statistical significant) and the lowest melanin concentration, while Grape-seed-oil was the only ingredient that achieved statistically significant decrease in melanin concentrations.